

Patent Claims

1. A safety device for a sensor, in particular a rotation
rate sensor, in which a sensor element and functional
5 components provide the function of the sensor and produce a
sensor output signal, characterized in that the functional
components (1, 10 to 18) form a function section (4) and in
that, furthermore, checking components (19 to 25) are provided
in a checking section (5) and monitoring components (26, 27,
10 28) are provided in a monitoring section (6), with the checking
components (19 to 25) being designed for continuous checking of
the functional components (1, 10 to 18), and the monitoring
components (26, 27, 28) being designed for monitoring of the
checking components (19 to 25) at least once during one
15 operating cycle.

2. The device as claimed in claim 1, characterized in that
the checking components (19 to 25) are designed to measure
values in the function section (4) and to compare the measured
20 values with limit values.

3. The device as claimed in claim 2, characterized in that
the checking components (19 to 25) are furthermore designed to
measure the sensor output signal and to compare the measured
25 sensor output signal with limit values.

4. The device as claimed in one of claims 2 or 3,
characterized in that the checking components (19 to 25) are
furthermore designed to test the functional components (1, 10
30 to 18), with test signals being produced and being supplied to
the functional components (1, 10 to 18), and the reaction of
the functional components (1, 10 to 18) to the test signals
being measured.

5. The device as claimed in one of claims 2 to 4, characterized in that the function section (4) contains digital components (14 to 17) and analog components (1, 10, 11), and in that the checking components are designed to access registers
5 of the digital components (14 to 17) and to measure analog signals at the analog components (1, 10, 11).

6. The device as claimed in claim 5, characterized in that the checking section (5) contains its own analog components (20
10 to 23) and at least one analog/digital converter (24).

7. The device as claimed in one of the preceding claims, characterized in that the monitoring components (26, 27, 28) are designed essentially to monitor digital checking components
15 (14 to 17).

8. The device as claimed in claim 7, characterized in that the monitoring section (6) has a component (26) for monitoring the clock of a microcomputer which is contained in the checking
20 section.

9. The device as claimed in one of claims 7 or 8, characterized in that the monitoring section (6) has a watchdog circuit (27) for monitoring a computer (19) which is contained
25 in the checking section.

10. The device as claimed in one of claims 7 to 9, characterized in that the monitoring section (6) contains a device (28) for testing memories within the checking section
30 (5).

11. The device as claimed in one of the preceding claims,
characterized in that components in the function section (4),
in the checking section (5) and in the monitoring section (6)
are formed by an application-specific integrated circuit
5 (ASIC), and in that gate circuits which are contained in the
circuit are in each case associated with only one of the
sections.